Review of Toward Spatial Humanities: Historical GIS & Spatial History, ed. Ian N. Gregory and Alistair Geddes (Bloomington, Indiana University Press, 2014).

History, Geography, and Historical GIS

Gregory, Ian, and Paul S. Ell. Historical GIS: technologies, methodologies and scholarship. Cambridge studies in historical geography; 39. Cambridge, UK; New York: Cambridge University Press, 2007. xi, 227.

The age of academic specialization has led History and Geography, the study of change over time and variation through space, to grow ever further apart. The promise of historical GIS is not that it will marry the two but that will facilitate a greater degree of poaching, a matter I shall return to in the second half of this review. Gregory and Ell further that interaction with their Historical GIS, a very useful introduction to and survey of the use of GIS in the study of past places which builds on and supersedes Gregory's A place in history: a guide to using GIS in historical research (Oxford and Oakville, CT: Oxbow; David Brown Book Co., 2003). The authors have deep experience in historical GIS; they were centrally involved in the creation of the Great Britain Historical GIS, the first great national historical GIS.

Gregory and Ell write from the perspective of historical geography and they see historical GIS as a field in historical geography (p. 17). I read the book as an historian interested in geographically-informed approaches to the study of history. This is, I think, the perfect book for historians who have heard of GIS and geospatial analysis but know little about it. It provides a clear explanation of the basics of GIS, the creation of GIS databases for historical subjects, the nature of spatial objects, and the fundamental techniques of handling GIS data. Its approach is conceptual and generic rather than software specific—which means that historians will still have to master a software package, which can be more difficult than the authors suppose.

At universities that have made the effort to inform students and faculty about the possibilities of GIS, interest and use has been steadily increasing. For many the idea of visualizing data on a map is instinctively appealing and once they learn some basic techniques it is hard to stop. The chapters on visualizing data, cartography, and historical atlases are thus particularly welcome, not only for their explanations but also for their warnings. As the technology of historical GIS moves out from under the authority of geography, something this book makes possible, the accumulated theoretical knowledge and craft skills of cartography are easily lost on historians whose training never included geography. The result, as the authors politely point out, can be a proliferation of indecipherable, confusing, and ineffective maps. I am not sure there is a solution to this—there is a sizeable body of writing on GIS and cartography already (see for example Monmonier, Mark S. Mapping it out: expository cartography for the humanities and social sciences [Chicago: University of Chicago Press, 1993])—except unrelenting criticism and technical support.

There is, of course, an extensive technical literature on GIS and on the representation of temporal change in GIS. Again, I fear it is unlikely that historians will ever become as conversant as geographers, either quantitative or qualitative, in these fields. To some extent historical GIS shares the problems of temporally-enabled GIS. The authors have invaluable insights into space and historical time in GIS. Standard GIS solutions to temporality (time slices, time series,

temporal animations) are crude, as the they point out, but historical time presents greater problems that make the standard solutions even more problematic. Tracking spatial change in urbanization from last year to this is a temporal problem, but in general comparable data is available for the beginning and end of the period in question. This is not the case as we go further back in time. The further back in time we proceed the more difficult it becomes to manage spatial change and the more we are inclined to work at higher levels of spatial aggregation to track ever-less comprehensive and spatially inexact attribute data. We thus lose exactly what GIS makes possible: the intensive analysis of space at low levels of aggregation. This will, I hope, push historians to look for possible solutions in the techniques of quantitative spatial analysis; here also the authors provide a useful introduction. This is not a problem for historians alone—economists too often treat large nations as single units of analysis, unaware perhaps of the potential explanatory power of a spatially sophisticated examination of the data. At a theoretical level "time" is a problem for geography, but if historians ask what spatial issues they want to track over time solutions may not be beyond our reach. I think the authors are right that historical GIS lends itself to descriptive accounts of changes in data over time and that explanations for change depend on research that need not be geographic in nature. This is true of some of the best examples of historical research that they cite, many of which have been brought together by Anne Kelly Knowles in Past time, past place: GIS for history (Redlands, Calif.: ESRI Press, 2002). Unfortunately Knowles and Amy Hillier's edited volume, Placing history: how maps, spatial data, and GIS are changing historical scholarship (Redlands, Calif.: ESRI Press, 2008) appeared too late to be assessed by Gregory and Ell.

The promise of historical GIS is even more evident in two contexts: the digital humanities and social sciences and the relationship between the disciplines of History and Geography. The digital revolution has confronted both the humanities and social sciences with the problem of how we can best make use of the massive amounts of data that are becoming accessible in digital formats. GIS is clearly one of the tools that scholars can use to make use of that very large proportion of data that has spatial attributes. It provides a common platform for using data that would otherwise remain within the confines of a particular discipline and it ought to make it possible to integrates the massive datasets that have been developed in the natural sciences. But an historical GIS faces a fundamental challenge: because it depends upon being able to locate places for which there are historical attribute data it requires that a common fundamental GIS be created that defines the locations of places. This is what expensive, labor-intensive projects to create national historical GIS seek to provide. These databases are essential building blocks of the cyberinfrastructure for the humanities and social sciences. Those who create them have in fact passed through repeated peer-review processes (in gaining grant support) and they have exposed their work to public use and criticism. Academic institutions must, and I think eventually will, learn how to give credit for those who "publish" these databases, who build their back-ends, who oversee the work of creating them, and who conceptualize the front-ends that make it possible for users to access them.

However, I am not persuaded that we should in the future focus the construction of historical GIS for large areas on census data, as has been the case with both the Great Britain and US national historical GIS, with its concomitant dependence on historical boundary maps to determine the relevant polygons. I have two objections, aside from the great expense of such work. First, polygon-based GIS will remain temporally limited. Adequate boundary maps for

administrative units or census tracks, for the few parts of the world that have them, only go back to the end of the eighteenth century. We can go much further back in time with point-based historical GIS, as the China Historical GIS has shown (221 BC-1911). Second, an historical GIS ought to serve many areas of inquiry, for which points are quite adequate: the location of cultural sites, towns and villages, the garrisons of military units, and so—the places where history unfolds—are more exactly located as points rather than polygons. Transportation and communication routes link points, not polygons. Gregory and Ell are absolutely right in calling for a world historical gazetteer. The question is how we can build it, who will take responsibility for doing so, and who will fund it.

The second context is the relationship between History and Geography. Historical GIS has, quite rightly, been led by historical geographers, but spatially-enabled historiography is not the same as historical geography. I do not think historians are interested in "place" per sé, even though we also recognize that place is both a cultural construction and something that can usually be located on the earth's physical surface. If historians are not committed to the study of place, in what sense can historical GIS make a difference in the study of history? My answer to this comes from a particular, admittedly simplistic, view of the parallels between History and Geography as disciplines. Although terrestrial space is finite and time is infinite, in practice human historical time is very limited and terrestrial space is, at the micro level, very extensive. History as an academic discipline deals with changes in human activity over time; no other discipline has its a commitment to defining change and accounting for it. Similarly, Geography deals with variation over space and no other discipline has its commitment to understanding the consequences of location and distance. The basic tool of the historian is the chronology; the basic tool of the geographer is the map. What a chronology can say or a map can show depend on the choice of scale, and scale is a way of picking out what is important; too fine a scale obscures as much as it reveals. I do not know of an influential historical study that did not work through words and, to some extent, through narrative, but I do know of maps that had extraordinary impact on consciousness through their visualization of spatial relationships. Of course it is a good for historians to use maps and it is fine that we can now generate them so easily, but the promise of historical GIS goes far beyond this. The problem with the chronological narrative is that it in fact must sacrifice a view of the larger, spatial context in which events unfold (historians would not keep asserting the importance of context so much if it was not a problem). This is what historical GIS offers us: the ability to see events unfolding across space through time, to see them in relationship to each other, even as we choose to bring some things into the narrative and not others. Historically no government has been the master of its own fate; those with power inevitably had limited purview, but the study of the past seeks to see more broadly than the historical actors could. Historical GIS allows historians to broaden our horizons, allows us to take far more into account, to see multiple narratives unfolding across the landscape, and to work collaboratively with others in developing a vision of the past.